



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,012	10/14/2003	Timothy J. Dalton	YOR920030336US1 (16898)	4288
23389	7590	01/26/2006	EXAMINER	
SCULLY SCOTT MURPHY & PRESSER, PC 400 GARDEN CITY PLAZA SUITE 300 GARDEN CITY, NY 11530			DIAZ, JOSE R	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

E/SV

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/685,012	DALTON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	José R. Diaz	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 05 January 2006.  
 2a) This action is FINAL.                  2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-7 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-7 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
     Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

1. The declaration filed on January 5, 2006 under 37 CFR 1.131 is sufficient to overcome the Toma et al. reference.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Hu et al. (US Pat. No. 6,417,118 B1).

Regarding claim 1, Hu et al. teaches an interconnect structure comprising:

a semiconductor substrate (20) comprising one or more device regions (22) [see fig. 7];

one or more interconnect levels (32) located atop the semiconductor substrate [see fig. 7 and col. 3, lines 36-40], said one or more interconnect levels comprising a patterned organosilicate dielectric layer (26) [see fig. 7 and col. 4, lines 1-7] having sidewalls comprise CH<sub>x</sub> species with x=1-3 (CH<sub>3</sub>) [see col. 6, lines 1-2].

Regarding claim 2, Hu et al. teaches a patterned organosilicate dielectric layer (26) having a dielectric constant of less than 4.0 [see col. 4, lines 2-3 and 6-7].

Regarding claim 7, Hu et al. further teaches that it is well known in the art to includes FET transistors integrated on a substrate [see col. 1, lines 19-23].

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al. (US Pat. No. 6,417,118 B1) in view of Applicant's admitted prior art as disclosed on page 2 paragraph (0003) of the instant application.

Regarding claims 3-6, Hu et al. essentially discloses the claimed invention, but fail to explicitly disclose a damascene wiring structure, which can be used to form thinwire or fatwire interconnect structures.

However, Applicant's admitted prior art discloses that thinwire or fatwire interconnect structures comprising damascene wiring structures are presently known and formed on integrated circuit chips [see paragraph 0002-0003].

Therefore, it would have been obvious to someone with ordinary skill in the art, at the time of the invention, to modify the structure as disclosed by Hu et al. to include the claimed thinwire or fatwire damascene interconnect structures, as suggested by Applicant's admitted prior art, in order to provide high speed signal routing patterns between large numbers of transistors on a complex semiconductor chip [see paragraph 0002]; and to provide wiring levels fabricated at a minimum lithographic feature size in the case of a thinwire and wiring levels with increased width in the case of a fatwire [see paragraph 0003].

***Response to Arguments***

6. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new grounds of rejection.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shao et al. (US Pat. No. 6,576,980 B1) teaches treating a porous layer to include CH<sub>3</sub> species (see fig. 2); Catabay et al. (US Pat. No. 6,537,896 B1) teaches treating only sidewalls (150) of a porous layer (see Fig. 6); and Passemard (US Pat. No. 6,624,053 B2) discloses a damascene interconnection structure (see abstract).

8. Applicant's amendment (as filed on August 16, 2005) necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2815

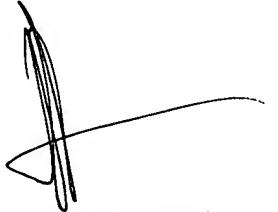
***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (571) 272-1727. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

José R. Díaz  
Examiner  
Art Unit 2815



KENNETH PARKER  
SUPERVISORY PATENT EXAMINER